

## GLOSSARY OF TERMS

The definitions and explanations in this glossary apply to words as they are used in this manual. Some words have more comprehensive meanings when used in other contexts.

**Absorption**—The process by which a herbicide passes from one system into another, e.g., from the soil solution into a plant root cell or from the leaf surface into the leaf cells.

**Acid equivalent (ae)**—The theoretical yield of parent acid from the active ingredient content of a formulation.

**Acre-foot**—The amount of water that will cover an acre 1 foot deep.

**Activate**—The process by which a surface-applied herbicide become phytotoxic after a rainfall. Activation results from movement of the herbicide into the soil where it can be absorbed by roots, stems, or seeds, and not from any chemical change in the active ingredient.

**Active ingredient (ai)**—The chemical in a herbicide formulation primarily responsible for its phytotoxicity, and which is identified as the active ingredient on the product label.

**Acute toxicity**—The quality or potential of a substance to cause injury or illness shortly after exposure to a relatively large dose. (See chronic toxicity.)

**Adjuvant**—Any substance in a herbicide formulation, or added to the spray tank, to improve herbicidal activity or application characteristics.

**Adsorption**—The process by which a herbicide associates with a surface, e.g., a soil colloidal surface.

**Annual**—A plant that completes its lifecycle from seed to death in 1 year.

**Aquatic weeds**—Undesirable plants that grow in water.

**Ballast**—A strip 12 to 16 feet wide made up of coarse material or gravel on a railroad roadbed.

**Band treatment**—Applied to a linear restricted strip on or along a crop row rather than continuously over the field area.

**Basal treatment**—Applied to encircle the stem of a plant above and at ground-level such that foliage contact is minimal. A term used mostly to describe treatment of woody plants.

**Berm**—A narrow band along a bank, along the pavement on a highway, or along the ballast of a railroad.

**Biennial**—a plant that completes its lifecycle in 2 years.

**Broadleaf plants**—Botanically, those classified as dicotyledons. Morphologically those that have broad, often compound leaves.

**Brush control**—Control of woody plants such as brambles, sprout clumps, shrubs, trees, and vines.

**Carrier**—A gas, liquid, or solid substance used to dilute or suspend a herbicide during its application.

**Chemical Name**—The name applied to a herbicide active ingredient that describes its chemical structure according to rules prescribed by the American Chemical Society and published in the Chemical Abstracts Indexes.

**Chlorosis**—Absence of green color (chlorophyll) from foliage.

**Chronic toxicity**—The quality or potential of a substance to cause injury or illness after repeated exposure to small doses over an extended period of time. (See acute toxicity.)

**Common name**—An abbreviated name applied to plants or to a herbicide active ingredient. Often agreed on by the American National Standards Institute and the International Organization for Standardization.

**Compatibility**—Mixable in the formulation, or in the spray tank, for application in the same carrier without undesirably altering the characteristics or effects of the individual components.

**Concentration**—The amount of active ingredient or herbicide equivalent in a quantity of diluent, expressed as percent, lb/gal, kg/l, etc.

**Contact herbicide**—A herbicide that causes localized injury to plant tissue where contact occurs and that is not appreciably translocated within plants.

**Cultivar**—A variety of plant that has been produced only under cultivation.

**Cultivation**—Mechanical soil disturbance after the crop has been planted, and usually after crop emergence for the purpose of killing weeds.

**Cut-surface applications**—Treatments made to frills or girdles that have been made with an ax or other tool through the bark and into the wood of woody plants or to freshly cut stumps.

**Desiccant**—Any substance or mixture of substances used to accelerate the drying of plant tissue.

**Detergent**—A chemical (not soap) having the ability to remove soil or grime. Household detergents can be used as surfactants in herbicide sprays.

**Diluent**—Any gas, liquid, or solid material used to reduce the concentration of an active ingredient in a formulation.

**Directed application**—Precise application to a specific area or plant organ, such as to a row or bed or to the leaves or stems of the plants.

**Dispersible Granule**—A dry granular formulation which will separate or disperse to form a suspension when added to water.

**Dormant spray**—A herbicide applied during the period after leaf-fall or death of leaves and before bud-break or deciduous trees.

**Emergence**—The event in seedling or perennial growth when a shoot becomes visible by pushing through the soil surface.

**Emulsifier**—A substance which promotes the suspension of one liquid in another.

**Emulsifiable concentrate (ec)**—A single phase liquid formulation which forms an emulsion when added to water.

**Emulsion**—One liquid suspended as minute globules in another liquid; i.e., oil dispersed in water.

**Epinasty**—That state in which more rapid growth on one side of a plant organ or part (especially the leaf) causes it to bend or curl downward.

**Extruded**—A process in which a powdered carrier mixed with the herbicide is moistened until it becomes plastic and then is extruded as rods. These rods are dried, ground, and screened to the required size for a granular or pelleted formulation.

**Flash point**—The lowest temperature at which a liquid gives off ignitable vapors.

**Floating plant**—A free-floating or anchored aquatic plant adapted to grow with most of its vegetative tissue at or above the water surface, and lowering or rising with the water level.

**Flowable**—A two-phase formulation that contains solid herbicide suspended in liquid and which forms a suspension when added to water.

**Formulation**—(1) A herbicidal preparation supplied by a manufacturer ready for practical use. (2) The process, carried out by manufacturers, of preparing herbicides for practical use.

**Fumigant**—A volatile chemical that can be applied on or in soil to kill seeds and plant parts.

**Germination**—The process of initiating growth in seeds.

**Granular**—A dry formulation consisting of discrete particles generally less than 10 cubic millimeters and designed to be applied without a liquid carrier.

**Growth regulator**—An organic substance effective in minute amounts for controlling or modifying plant growth processes.

**Herbaceous plant**—A vascular plant that does not develop persistent woody tissue above ground.

**Herbicide**—A chemical used to control, suppress, or kill plants, or to severely interrupt their normal growth processes.

**Herbicide Resistance**—The tolerance of a population of plants for a particular herbicide. Sometimes resistance has developed because of natural selection of plants that are less susceptible to the herbicide than the average of the species when exposed through several reproductive cycles.

**High volume spray**—Refers to 100 or more gallons per acre, usually made by spray gun with adjustable nozzle(s) and either held by hand or mounted on turret.

**Incorporate**—To mix or blend a herbicide into the soil.

**Invert emulsion**—The suspension of minute water droplets in a continuous oil phase.

**Label**—The directions for using a pesticide approved as a result of the registration process.

**Lateral movement**—Movement of a herbicide through soil, generally in a horizontal plane, from the original site of application.

**Layby application**—Applied and incorporated with, or applied after, the last cultivation of a crop.

**LC<sub>50</sub>**—The concentration of a chemical(s) in air (inhalation toxicity) or water (aquatic toxicity) that will kill 50 percent of the organisms in a specific test situation.

**LD<sub>50</sub>**—The dose (quantity) of a chemical(s) calculated to be lethal to 50 percent of the organisms in a specific test situation. It is expressed in weight of the chemical (mg) per unit of body weight (kg) and the toxicant may be fed (oral LD<sub>50</sub>), applied to the skin (dermal LD<sub>50</sub>), or administered in the form of vapors (inhalation LD<sub>50</sub>).

**Leaching**—Movement of a substance in solution downward through soil.

**Low-volatile ester**—Chemically, an ester with a heavy molecular weight, such as the butoxy-ethanol, iso-octyl, or propylene-glycol-butyl-ether esters.

**Metabolite**—A compound derived from metabolic transformation of a herbicide by plants or other organisms.

**Mutagenic**—Capable of causing genetic changes.

**Necrosis**—Localized death of tissue, usually characterized by browning and desiccation.

**Nonselective herbicide**—A herbicide that is generally toxic to all plants. Some selective herbicides may become nonselective if used at very high rates.

**Nontarget species**—Species not intentionally treated by a pesticide.

**Noxious weed**—A weed specified by law as being especially undesirable, troublesome, and difficult to control. Precise definition varies according to legal interpretations.

**Overtop application**—Applied over the top of transplanted or growing plants such as by airplane or a raised spray boom of ground rigs. A broadcast or banded application above the plant canopy.

**Pelleted formulation**—A dry formulation consisting of discrete particles, usually larger than 10 cubic millimeters, and designed to be applied without a liquid carrier.

**Persistent herbicide**—A herbicide that, when applied at the recommended rate, will harm susceptible plants planted in normal rotation after harvesting the treated plants, or that interferes with regrowth of native vegetation in noncrop sites for an extended period of time. (See residual herbicide.)

**Pesticide interaction**—The action or influence of one pesticide upon another, and the combined effect of the pesticides on the pest(s) or crop system.

**Phytotoxic**—Injurious or lethal to plants.

**Plant growth regulator**—A substance used for controlling or modifying plant growth processes without appreciable phytotoxic effect at the dosage applied.

**Phloem**—The living tissue in plants that functions primarily to transport metabolic compounds from the site of synthesis or storage to the site of utilization.

**Postemergence (poe)**—(1) Applied after emergence of the specified weed or seeded plants. (2)—Ability to control established weeds.

**Preemergence (pe)**—(1) Applied to the soil prior to emergence of the specified weed or ornamental plants. (2) Ability to control weeds before or soon after they emerge.

**Preplant application**—Applied before seeding or transplanting a crop, either as a foliar application to control existing vegetation or as a soil application.

**Preplant incorporated (ppi)**—Applied and tilled into the soil before seeding or transplanting.

**Rate**—The amount of active ingredient or acid equivalent applied per unit area or other treatment unit. Rates of formulation per area should not be used in scientific publications.

**Registration**—The process designated by FIFRA and carried out by EPA by which a pesticide is legally approved for use.

**Residue**—That quantity of a herbicide remaining in or on the soil, plant parts, animal tissues, whole organisms, and surfaces.

**Residual herbicide**—A herbicide that persists in the soil and injures or kills germinating weed seedlings over a relatively short period of time. (See persistent herbicide.)

**Selective herbicide**—A chemical that is more toxic to some plant species than to others. Some nonselective herbicides at low rates may be selective.

**Soil injection**—Placement of the herbicide beneath the soil surface with a minimum of mixing or stirring of the soil, as with an injection blade, knife, or tine.

**Soil-layered**—Placement of the herbicide beneath the soil surface in a continuous layer with a minimum of mixing.

**Soluble concentration**—A liquid formulation that forms a solution when added to water.

**Soluble powder**—A dry formulation that forms a solution when added to water.

**Solution**—A homogeneous or single phase mixture of two or more substances.

**Spot treatment**—A herbicide applied to a restricted area(s) of a whole unit, i.e., treatment of spots or patches of weeds within a larger field.

**Spray drift**—Movement of airborne spray from the intended area of application.

**Stem-foliage application**—An application of a herbicide to both stems and leaves of a plant, usually a woody plant.

**Submersed plant**—An aquatic plant that grows with all or most of its vegetative tissue below the water surface.

**Surfactant**—A material which improves the emulsifying, dispersing, spreading, wetting, or other surface-modifying properties of liquids.

**Susceptibility**—The sensitivity to, or degree to which a plant is injured by, a herbicide treatment. (See tolerance.)

**Suspension**—A mixture containing finely divided particles evenly dispersed in a liquid.

**Systemic herbicide**—Synonymous with translocated herbicide, but more often used to describe the action of insecticides or fungicides.

**Tank-mix combination**—Mixing of two or more pesticides or agricultural chemicals in the spray tank at the time of application.

**Tolerance**—(1) Ability to withstand herbicide treatment without marked deviation from normal growth or function. (See susceptibility.) (2) The concentration of herbicide residue that will be allowed in or on agricultural products.

**Toxicity**—The quality or potential of a substance to cause injury or illness.

**Toxicology**—The study of the principles or mechanisms of toxicity.

**Teratogenic**—Capable of producing birth defects.

**Trade name**—A trademark applied to a herbicide formulation by its manufacturer.

**Translocated herbicide**—A herbicide that is moved within the plant. Translocated herbicides may be either phloem-mobile or xylem-mobile, but the term is frequently used in a more

restrictive sense to refer to herbicides that are applied to the foliage and move downward through the phloem to underground parts.

**Vapor drift**—The movement of chemical vapors from the area of application. Some herbicides, when applied at normal rates and normal temperatures, have a sufficiently high vapor pressure to change them into a vapor that may cause injury to susceptible plants distant from the site of application. NOTE: Vapor injury and injury from spray drift are often difficult to distinguish.

**Volatile**—Capable of being readily vaporized.

**Weed**—Any plant that is objectionable or that interferes with the activities or welfare of man.

**Weed control**—The process of reducing weed growth or infestation to an acceptable level.

**Weed eradication**—The elimination of all live plant parts and viable seeds of a weed from a site.

**Wetting agent**—(1) A substance that reduces interfacial tensions and causes spray solutions or suspensions to make better contact with treated surfaces. (See surfactant.) (2) A substance in a wettable powder formulation that causes it to wet readily when added to water.

**Wettable powder (wp)**—A finely divided dry formulation that can be readily suspended in water.

**Xylem**—The nonliving tissue in plants that functions primarily to conduct water and mineral nutrients from roots to the shoot.